EPA Volatilization Factor (EPA, May 1996)	
VF = [(Q/C) * ((3.14*Da*T)^(1/2))/(2*db*Da)*10^-4]	
Da = ((Pa^(10/3)*Di*H+Pw^(10/3)*Dw)/n^2)/(db*Kd+Pw+Pa*H)	
BENZENE	
VF = volatilization factor (m^3/kg) calculated	3133
Q/C = inverse of the mean conc. at center of square source (g/m^2-s per kg/m^3) Denver	75.59
pi = 3.14	3.14
Da = apparent diffusivity (cm^2/s) calculated	0.001929191
Pa = air-filled soil porosity (Lair/Lsoil)	0.28
Di = diffusivity in air (cm^2/s) chemical specific	0.088
H = dimensionless Henry's law constant chemical specific	0.228
Pw = water-filled soil porosity (Lwater/Lsoil)	0.15
Dw = diffusivity in water (cm^2/s) chemical specific	9.80E-06
n = total soil porosity (Lpore/Lsoil)	0.43
db = dry soil bulk density (g/cm^3)	1.50E+00
Kd = soil-water partition coefficient (Koc*foc; cm^3/g) calculated	0.396
Koc = soil organic carbon-water partition coefficient (cm^3/g) chemical specific	66
foc = organic carbon content of soil (g/g)	0.006
T = exposure interval (s)	9.50E+08
10^-4 = conversion factor (m^2/cm^2)	1.00E-04
TOLUENE	
VF = volatilization factor (m^3/kg) calculated	3972
Q/C = inverse of the mean conc. at center of square source (g/m^2-s per kg/m^3) Denver	75.59
pi = 3.14	3.14
Da = apparent diffusivity (cm^2/s) calculated	0.001200449
Pa = air-filled soil porosity (Lair/Lsoil)	0.28
Di = diffusivity in air (cm^2/s) chemical specific	0.087
H = dimensionless Henry's law constant chemical specific	0.272
Pw = water-filled soil porosity (Lwater/Lsoil)	0.15
Dw = diffusivity in water (cm^2/s) chemical specific	8.60E-06
n = total soil porosity (Lpore/Lsoil)	0.43
db = dry soil bulk density (g/cm^3)	1.50E+00
Kd = soil-water partition coefficient (Koc*foc; cm^3/g) calculated	0.87
Koc = soil organic carbon-water partition coefficient (cm^3/g) chemical specific	145
foc = organic carbon content of soil (g/g)	0.006
T = exposure interval (s)	9.50E+08
10^-4 = conversion factor (m^2/cm^2)	1.00E-04
ETHYLBENZENE	
VF = volatilization factor (m^3/kg) calculated	4601
Q/C = inverse of the mean conc. at center of square source (g/m^2-s per kg/m^3) Denver	75.59
pi = 3.14	3.14
Da = apparent diffusivity (cm^2/s) calculated	0.000894556
Pa = air-filled soil porosity (Lair/Lsoil)	0.28
Di = diffusivity in air (cm^2/s) chemical specific	0.075
H = dimensionless Henry's law constant chemical specific	0.323
Pw = water-filled soil porosity (Lwater/Lsoil)	0.15
Dw = diffusivity in water (cm^2/s) chemical specific	7.80E-06
n = total soil porosity (Lpore/Lsoil)	0.43
db = dry soil bulk density (g/cm^3)	1.50E+00
Kd = soil-water partition coefficient (Koc*foc; cm^3/g) calculated	1.242
Koc = soil organic carbon-water partition coefficient (cm^3/g) chemical specific	207
foc = organic carbon content of soil (g/g)	0.006
T = exposure interval (s)	9.50E+08
10^-4 = conversion factor (m^2/cm^2)	1.00E-04

XYLENES	
VF = volatilization factor (m^3/kg) calculated	4302
Q/C = inverse of the mean conc. at center of square source (g/m^2-s per kg/m^3) Denver	75.59
pi = 3.14	3.14
Da = apparent diffusivity (cm^2/s) calculated	0.001023136
Pa = air-filled soil porosity (Lair/Lsoil)	0.28
Di = diffusivity in air (cm^2/s) chemical specific (o-xylene)	0.087
H = dimensionless Henry's law constant chemical specific (p-xylene)	0.314
Pw = water-filled soil porosity (Lwater/Lsoil)	0.15
Dw = diffusivity in water (cm^2/s) chemical specific (o-xylene)	1.00E-05
n = total soil porosity (Lpore/Lsoil)	0.43
db = dry soil bulk density (g/cm^3)	1.50E+00
Kd = soil-water partition coefficient (Koc*foc; cm^3/g) calculated	1.224
Koc = soil organic carbon-water partition coefficient (cm^3/g) chemical specific (m-xylene)	204
foc = organic carbon content of soil (g/g)	0.006
T = exposure interval (s)	9.50E+08
10^-4 = conversion factor (m^2/cm^2)	1.00E-04
MTBE	
VF = volatilization factor (m^3/kg) calculated	6018
Q/C = inverse of the mean conc. at center of square source (g/m^2-s per kg/m^3) Denver	75.59
pi = 3.14	3.14
Da = apparent diffusivity (cm^2/s) calculated	0.000522928
Pa = air-filled soil porosity (Lair/Lsoil)	0.28
Di = diffusivity in air (cm^2/s) chemical specific	0.0792
H = dimensionless Henry's law constant chemical specific	0.02255
Pw = water-filled soil porosity (Lwater/Lsoil)	0.15
Dw = diffusivity in water (cm^2/s) chemical specific	9.41E-05
n = total soil porosity (Lpore/Lsoil)	0.43
db = dry soil bulk density (g/cm^3)	1.50E+00
Kd = soil-water partition coefficient (Koc*foc; cm^3/g) calculated	0.0738
Koc = soil organic carbon-water partition coefficient (cm^3/g) chemical specific	12.3
foc = organic carbon content of soil (g/g)	0.006
T = exposure interval (s)	9.50E+08
10^-4 = conversion factor (m^2/cm^2)	1.00E-04
C5-C8 ALIPHATICS	
VF = volatilization factor (m^3/kg) calculated	1419
Q/C = inverse of the mean conc. at center of square source (g/m^2-s per kg/m^3) Denver	75.59
pi = 3.14	3.14
Da = apparent diffusivity (cm^2/s) calculated	0.009410657
Pa = air-filled soil porosity (Lair/Lsoil)	0.28
Di = diffusivity in air (cm^2/s) chemical specific	0.08
H = dimensionless Henry's law constant chemical specific	54
Pw = water-filled soil porosity (Lwater/Lsoil)	0.15
Dw = diffusivity in water (cm^2/s) chemical specific	7.77E-06
n = total soil porosity (Lpore/Lsoil)	0.43
db = dry soil bulk density (g/cm^3)	1.50E+00
Kd = soil-water partition coefficient (Koc*foc; cm^3/g) calculated	13.59
Koc = soil organic carbon-water partition coefficient (cm^3/g) chemical specific	2265
foc = organic carbon content of soil (g/g)	0.006
T = exposure interval (s)	9.50E+08
10^-4 = conversion factor (m^2/cm^2)	1.00E-04

NAPHTHALENE	
VF = volatilization factor (m^3/kg) calculated	48405
Q/C = inverse of the mean conc. at center of square source (g/m^2-s per kg/m^3) Denver	75.59
pi = 3.14	3.14
Da = apparent diffusivity (cm^2/s) calculated	8.08288E-06
Pa = air-filled soil porosity (Lair/Lsoil)	0.28
Di = diffusivity in air (cm^2/s) chemical specific	5.90E-02
H = dimensionless Henry's law constant chemical specific	0.0198
Pw = water-filled soil porosity (Lwater/Lsoil)	0.15
Dw = diffusivity in water (cm^2/s) chemical specific	7.50E-06
n = total soil porosity (Lpore/Lsoil)	0.43
db = dry soil bulk density (g/cm^3)	1.50E+00
Kd = soil-water partition coefficient (Koc*foc; cm^3/g) calculated	7.386
Koc = soil organic carbon-water partition coefficient (cm^3/g) chemical specific	1.23E+03
foc = organic carbon content of soil (g/g)	0.006
T = exposure interval (s)	9.50E+08
10^-4 = conversion factor (m^2/cm^2)	1.00E-04
C9-C12 ALIPHATICS	
VF = volatilization factor (m^3/kg) calculated	8563
Q/C = inverse of the mean conc. at center of square source (g/m^2-s per kg/m^3) Denver	75.59
pi = 3.14	3.14
Da = apparent diffusivity (cm^2/s) calculated	0.000258268
Pa = air-filled soil porosity (Lair/Lsoil)	0.28
Di = diffusivity in air (cm^2/s) chemical specific	0.07
H = dimensionless Henry's law constant chemical specific	65
Pw = water-filled soil porosity (Lwater/Lsoil)	0.15
Dw = diffusivity in water (cm^2/s) chemical specific	5.97E-06
n = total soil porosity (Lpore/Lsoil)	0.43
db = dry soil bulk density (g/cm^3)	1.50E+00
Kd = soil-water partition coefficient (Koc*foc; cm^3/g) calculated	900
Koc = soil organic carbon-water partition coefficient (cm^3/g) chemical specific	1.50E+05
foc = organic carbon content of soil (g/g)	0.006
T = exposure interval (s)	9.50E+08
10^-4 = conversion factor (m^2/cm^2)	1.00E-04
C9-C18 ALIPHATICS	
VF = volatilization factor (m^3/kg) calculated	17605
Q/C = inverse of the mean conc. at center of square source (g/m^2-s per kg/m^3) Denver	75.59
pi = 3.14	3.14
Da = apparent diffusivity (cm^2/s) calculated	6.11045E-05
Pa = air-filled soil porosity (Lair/Lsoil)	0.28
Di = diffusivity in air (cm^2/s) chemical specific	0.07
H = dimensionless Henry's law constant chemical specific	69
Pw = water-filled soil porosity (Lwater/Lsoil)	0.15
Dw = diffusivity in water (cm^2/s) chemical specific	5.97E-06
n = total soil porosity (Lpore/Lsoil)	0.43
db = dry soil bulk density (g/cm^3)	1.50E+00
Kd = soil-water partition coefficient (Koc*foc; cm^3/g) calculated	4080
Koc = soil organic carbon-water partition coefficient (cm^3/g) chemical specific	6.80E+05
foc = organic carbon content of soil (g/g)	0.006
T = exposure interval (s)	9.50E+08
10^-4 = conversion factor (m^2/cm^2)	1.00E-04

ANTHRACENE	
VF = volatilization factor (m^3/kg) calculated	782038
Q/C = inverse of the mean conc. at center of square source (g/m^2-s per kg/m^3) Denver	75.59
pi = 3.14	3.14
Da = apparent diffusivity (cm^2/s) calculated	3.09659E-08
Pa = air-filled soil porosity (Lair/Lsoil)	0.28
Di = diffusivity in air (cm^2/s) chemical specific	3.24E-02
H = dimensionless Henry's law constant chemical specific	0.00267
Pw = water-filled soil porosity (Lwater/Lsoil)	0.15
Dw = diffusivity in water (cm^2/s) chemical specific	7.74E-06
n = total soil porosity (Lpore/Lsoil)	0.43
db = dry soil bulk density (g/cm^3)	1.50E+00
Kd = soil-water partition coefficient (Koc*foc; cm^3/g) calculated	146.172
Koc = soil organic carbon-water partition coefficient (cm^3/g) chemical specific	2.44E+04
foc = organic carbon content of soil (g/g)	0.006
T = exposure interval (s)	9.50E+08
10^-4 = conversion factor (m^2/cm^2)	1.00E-04
ACENAPHTHALENE	
VF = volatilization factor (m^3/kg) calculated	202974
Q/C = inverse of the mean conc. at center of square source (g/m^2-s per kg/m^3) Denver	75.59
pi = 3.14	3.14
Da = apparent diffusivity (cm^2/s) calculated	4.59683E-07
Pa = air-filled soil porosity (Lair/Lsoil)	0.28
Di = diffusivity in air (cm^2/s) chemical specific	0.0421
H = dimensionless Henry's law constant chemical specific	0.00636
Pw = water-filled soil porosity (Lwater/Lsoil)	0.15
Dw = diffusivity in water (cm^2/s) chemical specific	7.69E-06
n = total soil porosity (Lpore/Lsoil)	0.43
db = dry soil bulk density (g/cm^3)	1.50E+00
Kd = soil-water partition coefficient (Koc*foc; cm^3/g) calculated	30.168
Koc = soil organic carbon-water partition coefficient (cm^3/g) chemical specific	5.03E+03
foc = organic carbon content of soil (g/g)	0.006
T = exposure interval (s)	9.50E+08
10^-4 = conversion factor (m^2/cm^2)	1.00E-04
FLUORENE	
VF = volatilization factor (m^3/kg) calculated	452267
Q/C = inverse of the mean conc. at center of square source (g/m^2-s per kg/m^3) Denver	75.59
pi = 3.14	3.14
Da = apparent diffusivity (cm^2/s) calculated	9.25869E-08
Pa = air-filled soil porosity (Lair/Lsoil)	0.28
Di = diffusivity in air (cm^2/s) chemical specific	0.0363
H = dimensionless Henry's law constant chemical specific	0.00261
Pw = water-filled soil porosity (Lwater/Lsoil)	0.15
Dw = diffusivity in water (cm^2/s) chemical specific	7.88E-06
n = total soil porosity (Lpore/Lsoil)	0.43
db = dry soil bulk density (g/cm^3)	1.50E+00
Kd = soil-water partition coefficient (Koc*foc; cm^3/g) calculated	53.436
Koc = soil organic carbon-water partition coefficient (cm^3/g) chemical specific	8.91E+03
foc = organic carbon content of soil (g/g)	0.006
T = exposure interval (s)	9.50E+08
10^-4 = conversion factor (m^2/cm^2)	1.00E-04

1,2-DICHLOROETHANE	
VF = volatilization factor (m^3/kg) calculated	13628
Q/C = inverse of the mean conc. at center of square source (g/m^2-s per kg/m^3) Denver	75.59
pi = 3.14	3.14
Da = apparent diffusivity (cm^2/s) calculated	0.000101973
Pa = air-filled soil porosity (Lair/Lsoil)	0.28
Di = diffusivity in air (cm^2/s) chemical specific	0.0104
H = dimensionless Henry's law constant chemical specific	0.04
Pw = water-filled soil porosity (Lwater/Lsoil)	0.15
Dw = diffusivity in water (cm^2/s) chemical specific	9.90E-06
n = total soil porosity (Lpore/Lsoil)	0.43
db = dry soil bulk density (g/cm^3)	1.50E+00
Kd = soil-water partition coefficient (Koc*foc; cm^3/g) calculated	0.1044
Koc = soil organic carbon-water partition coefficient (cm^3/g) chemical specific	1.74E+01
foc = organic carbon content of soil (g/g)	0.006
T = exposure interval (s)	9.50E+08
10^-4 = conversion factor (m^2/cm^2)	1.00E-04
1,2-DIBROMOETHANE	
VF = volatilization factor (m^3/kg) calculated	11893
Q/C = inverse of the mean conc. at center of square source (g/m^2-s per kg/m^3) Denver	75.59
pi = 3.14	3.14
Da = apparent diffusivity (cm^2/s) calculated	0.000133902
Pa = air-filled soil porosity (Lair/Lsoil)	0.28
Di = diffusivity in air (cm^2/s) chemical specific	0.0217
H = dimensionless Henry's law constant chemical specific	0.0304
Pw = water-filled soil porosity (Lwater/Lsoil)	0.15
Dw = diffusivity in water (cm^2/s) chemical specific	1.19E-05
n = total soil porosity (Lpore/Lsoil)	0.43
db = dry soil bulk density (g/cm^3)	1.50E+00
Kd = soil-water partition coefficient (Koc*foc; cm^3/g) calculated	0.15
Koc = soil organic carbon-water partition coefficient (cm^3/g) chemical specific	2.50E+01
foc = organic carbon content of soil (g/g)	0.006
T = exposure interval (s)	9.50E+08
10^-4 = conversion factor (m^2/cm^2)	1.00E-04
* The following are the sources of the data used to calculate the volatilization factors:	
All non-chemical specific data and the chemical specific data for the target analytes: EPA, May 1996	
Chemical specific data for the non-target analytes except for Dw: MADEP, October 1997	
Chemical specific data for the lead scavengers: EPA, November 2002	
Dw for non-target analytes: TPHCWG, July 1997	